

Claims

1. A diagnostic system, comprising:

first communication means provided on a user side of a virtual living thing which exists as software and is programmed so as to act or behave are programmed;

second communication means provided on a service providing side which provides a service to diagnose the condition of said software of said virtual living thing or the condition of hardware keeping said virtual living thing; and

a communication line for connecting said first and second communication means, and wherein:

said first communication means transmits, to said second communication means through said communication line, data for diagnosis necessary for diagnosing the condition of said software of said virtual living thing or the condition of said hardware keeping said virtual living thing; and

said second communication means analyzes said data for diagnosis, which is given from said first communication means, and diagnosis said condition of said software of said virtual living thing or said condition of said hardware keeping said virtual living thing, on the basis of the analysis result.

2. The diagnostic system according to Claim 1, wherein:

said second communication means transmits said diagnosis

result to said first communication means through said communication line; and

said first communication means comprises display means to visually display said diagnosis result, which is given from said second communication means.

3. The diagnostic system according to Claim 1, wherein:

said virtual living thing has at least one of a transition probability model which is obtained by modeling transition of generating actions and behaviors of the virtual living thing, a feeling model which is obtained by modeling change of feeling of the virtual living thing, and a growth model which is obtained by modeling the growth of the virtual living thing, and on the basis of the external condition, the internal condition and/or the operation from outside, the transition probabilities corresponding to said transition probability model, parameter values corresponding to said feeling model, and/or the current growth step of the virtual living thing in said growth model are changed as necessity;

said first communication means transmits to said second communication means, each of said transition probabilities of said transition probability model, each of said parameter values of said feeling model, and/or a growth step value expressing the current growth step in said growth model, as said data for diagnosis for diagnosing said condition of said software of said

virtual living thing; and

said communication means analyzes each of said transition probabilities of said transition probability model, each of said parameter values of said feeling model, and/or said growth step value, and diagnoses the character of said virtual living thing as said condition of said virtual living thing on the basis of the analysis result.

4. The diagnostic system according to Claim 3, wherein said second communication means:

transmits question data to said first communication means, to ask said user of said virtual living thing how to breed the virtual living thing, after diagnosing said character of the virtual living thing;

performs predetermined counseling processing on the basis of said user's answers to the questions, which are transmitted from said first communication means, and said data for diagnosis of the virtual living thing; and

transmits to said first communication means, the counseling result indicating how to breed the virtual living thing, which is obtained through the counseling processing.

5. The diagnostic system according to Claim 1, wherein:

said second communication means transmits a problem diagnostic program which is a computer program to diagnose the

condition of said hardware keeping said virtual living thing;

said first communication means examine if said hardware keeping said virtual living thing has any problems, and transmits the examination result to said second communication means; and

said second communication means analyzes the examination result, which is transmitted from said first communication means, and diagnoses the presence or absence of problem as said condition of said hardware keeping the virtual living thing.

6. The diagnostic system according to Claim 5, wherein

said second communication means informs a predetermined service center of data related to a problem and/or necessary data including the serial number of said virtual living thing which is obtained via said first communication means, in the case where said hardware keeping the virtual living thing has the problem.

7. The diagnostic system according to Claim 5, wherein

said second communication means transmits a destination of a repair request to said first communication means when said hardware keeping said virtual living thing has a problem.

8. A diagnostic method, comprising:

a first step of transmitting data for diagnosis necessary for diagnosing the condition of software of a virtual living thing or the condition of hardware keeping the virtual living

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thing, from a first communication means provided on a user side of the virtual living thing which exists as software and is programmed so as to act or behave, to a second communication means provided on a service providing side which provides a service to diagnoses the condition of said software of the virtual living thing or the condition of the hardware keeping the virtual living thing; and

a second step of, using said second communication means, analyzing said data for diagnosis, which is given from said first communication means, and diagnosing said condition of said software of said virtual living thing or said condition of said hardware keeping said virtual living thing, on the basis of the analysis result.

9. The diagnostic method according to Claim 8, comprising a third step of transmitting said diagnosis result to said first communication means through said communication line from said second communication means, and visually displaying said diagnosis result, which is obtained from said second communication means, with said first communication means.

10. The diagnostic method according to Claim 8, wherein:
said virtual living thing has at least one of a transition probability model which is obtained by modeling transition of generating actions and behaviors of the virtual living thing, a

feeling model which is obtained by modeling change of feeling of the virtual living thing, and a growth model which is obtained by modeling the growth of the virtual living thing, and on the basis of the external condition, the internal condition and/or the operation from outside, the transition probabilities corresponding to said transition probability model, parameter values corresponding to said feeling model, and/or the current growth step of the virtual living thing in said growth model are changed as necessity;

said first step is to transmit each of said transition probabilities of said transition probability model, each of said parameter values of said feeling model, and/or a growth step value representing the current growth step in said growth model, to said communication means as said data for diagnosis for diagnosing said condition of said software of said virtual living thing; and

said second step is to analyze each of said transition probabilities of said transition probability model, each of said parameter values of said feeling model, and/or said growth step value and to diagnoses the character of said virtual living thing as said condition of said virtual living thing on the basis of the analysis result.

11. The diagnostic system according to Claim 10, wherein said second step comprises:

a question data transmitting step of transmitting question data to said first communication means, to ask said user of said virtual living thing how to breed the virtual living thing, after diagnosing said character of the virtual living thing;

a counseling processing step of performing predetermined counseling processing on the basis of said user's answers to the questions, which are transmitted from said first communication means, and said data for diagnosis of the virtual living thing; and

a counseling result transmitting step of transmitting to said first communication means, the counseling result indicating how to breed the virtual living thing, which is obtained through the counseling processing.

12. The diagnostic method according to Claim 10, wherein said first step comprises:

a problem diagnostic program transmitting step of transmitting a problem diagnostic program which is a computer program to diagnose the condition of said hardware keeping said virtual living thing;

an examining step of examining if said hardware keeping said virtual living thing has any problems, on the basis of the problem diagnostic program; and

an examination result transmitting step of

transmitting the examination result to said second communication means; and

said second step is to analyze the examination result, which is transmitted from said first communication means, and to diagnose the presence or absence of problem as said condition of said hardware keeping the virtual living thing.

13. The diagnostic method according to Claim 12, wherein said second step comprises
- an informing step of informing a predetermined service center of data related to a problem and/or necessary data including the serial number of said virtual living thing which is obtained via said first communication means, in the case where said hardware keeping the virtual living thing has the problem.
14. The diagnostic method according to Claim 12, wherein said second step comprises
- a repair-request-destination informing step of transmitting a destination of a repair request to said first communication means when said hardware keeping said virtual living thing has a problem.
15. A diagnostic device comprising:
- analyzing means for acquiring data for diagnosis necessary

for diagnosing the condition of software of a virtual living thing which exists as software and is programmed so as to act or behave and the condition of hardware keeping the virtual living thing, from the hardware or a storage medium storing the software, and analyzing the data; and

diagnosing means for diagnosing said condition of said virtual living thing on the basis of the analysis result by said analyzing means.

16. The diagnostic device according to Claim 15, wherein said analyzing means acquires said data for diagnosis from said hardware or said storage medium on a predetermined network.

17. The diagnostic device according to Claim 15, comprising display means for visually displaying said diagnosis result by said diagnosing means.

18. The diagnostic device according to Claim 15, wherein:
said virtual living thing has at least one of a transition probability model which is obtained by modeling transition of generating actions and behaviors of the virtual living thing, a feeling model which is obtained by modeling change of feeling of the virtual living thing, and a growth model which is obtained by modeling the growth of the virtual living thing, and on the basis of the external condition, the internal condition and/or the

operation from outside, the transition probabilities corresponding to said transition probability model, parameter values corresponding to said feeling model, and/or the current growth step of the virtual living thing in said growth model are changed as necessity;

said analyzing means acquires each of said transition probabilities of said transition probability model, each of said parameter values of said feeling model, and/or a growth step value representing the current growth step in said growth model, as said data for diagnosis for diagnosing said condition of said software of said virtual living thing, from said hardware or said storage medium, and analyzes each of said transition probabilities of said transition probability model, each of said parameter values of said feeling model, and/or said growth step value; and

said diagnosing means diagnoses the character of said virtual living thing as said condition of said virtual living thing.

19. The diagnostic device according to Claim 17, wherein said diagnosing means is to:

display question data to ask said user of said virtual living thing how to breed the virtual living thing on said display means, after diagnosing said character of said virtual living thing; and

perform predetermined counseling processing on the basis of said user's answers to the questions and said data for diagnosis of the virtual living thing, and display the counseling result indicating how to breed the virtual living thing, which is obtained through the counseling processing, on said display means.

20. The diagnostic device according to Claim 16, wherein:

a problem diagnostic program which is a computer program to diagnose the condition of said hardware keeping said virtual living thing is transmitted to the user side of said virtual living thing on said network;

said analyzing means analyzes the examination result, which is transmitted from the user side, indicating the presence or absence of the problem in said hardware keeping said virtual living thing, on the basis of said problem diagnostic program; and

said diagnosing means diagnoses the presence or absence of a problem as said condition of said hardware keeping said virtual living thing, on the basis of the analysis result by said analyzing means.

21. The diagnostic device according to Claim 20, wherein

said diagnosing means informs a predetermined service center of data related to a problem and/or necessary data

including the serial number of said virtual living thing, which is obtained on said network, in the case where said hardware keeping said virtual living thing has the problem.

22. The diagnostic device according to Claim 20, wherein said diagnosing means informs said user side of a destination of the repair request in the case where said hardware keeping said virtual living thing has a problem.

23. A diagnostic method, comprising:

a first step of acquiring data for diagnosis necessary for diagnosing the condition of software of a virtual living thing which exists as software and is programmed so as to act or behave or the condition of hardware keeping the software, from the hardware or a storage medium storing the software, and analyzing the data; and

a second step of diagnosing said condition of said virtual living thing on the basis of the analysis result.

24. The diagnostic method according to Claim 23, wherein said first step is to acquire said data necessary for said diagnosis from said hardware or the storage medium on a predetermined network.

25. The diagnostic method according to Claim 23, wherein

said second step comprises

a third step of visually display said diagnosis result.

26. The diagnostic method according to Claim 23, wherein:

said virtual living thing has at least one of a transition probability model which is obtained by modeling transition of generating actions and behaviors of the virtual living thing, a feeling model which is obtained by modeling change of feeling of the virtual living thing, and a growth model which is obtained by modeling the growth of the virtual living thing, and on the basis of the external condition, the internal condition and/or the operation from outside, the transition probabilities corresponding to said transition probability model, parameter values corresponding to said feeling model, and/or the current growth step of the virtual living thing in said growth model are changed as necessity;

said first step is to acquire each of said transition probabilities of said transition probability model, each of said parameter values of said feeling model, and/or a growth step value representing the current growth step in said growth model, as said data for diagnosis for diagnosing said condition of said software of said virtual living thing, and analyze obtained each of said transition probabilities of said transition probability model, each of said parameter values of said feeling model,

and/or said growth step value; and

said second step is to diagnose the character of said virtual living thing as said condition of said virtual living thing on the basis of analysis result.

27. The diagnostic method according to Claim 26, comprising:

a third step of transmitting question data to said user on said network, to ask said user of said virtual living thing how to breed the virtual living thing, after diagnosing said character of the virtual living thing;

a fourth step of performing predetermined counseling processing on the basis of said user's answers to the questions, which are transmitted on said network, and said data for diagnosis of the virtual living thing; and

a fifth step of transmitting to said user the counseling result indicating how to breed the virtual living thing, which is obtained through the counseling processing.

28. The diagnostic method according to Claim 24, wherein:

said first step comprises:

a problem diagnostic program transmitting step of transmitting a problem diagnostic program which is a computer program to diagnose the condition of said hardware keeping said virtual living thing, on said network to said user of said virtual living thing;

05914408-1082701

a diagnostic data acquiring step of acquiring the examination result indicating the presence or absence of the problem in said hardware keeping said virtual living thing, which is performed on said user side on the basis of the problem diagnostic program, as said data for diagnosis; and

an analyzing step of analyzing the obtained data for diagnosis; and

said second step is to diagnose the presence or absence of a problem as said condition of said hardware keeping said virtual living thing, on the basis of the analysis result in said analyzing step.

29. The diagnostic method according to Claim 28, wherein said second step comprises

an informing step of informing a predetermined service center of data related to a problem and/or necessary data including the serial number of said virtual living thing, which is obtained on said network, in the case where said hardware keeping said virtual living thing has the problem.

30. The diagnostic method according to Claim 28, wherein said second step comprises

a repair-request-destination informing step of

transmitting a destination of a repair request to said first communication means in the case where said hardware keeping said virtual living thing has a problem.

31. A diagnostic system, comprising:

first communication means provided on a user side of a robot apparatus;

second communication means provided on a service providing side which provides a service to examine hardware or software of said robot apparatus; and

a communication line for connecting said first and second communication means, and wherein:

said first communication means transmits data for diagnosis necessary for diagnosing the condition of said hardware or said software of said robot apparatus, to said second communication means through said communication line; and

said second communication means analyzes said data for diagnosis, which is given from said first communication means, and diagnoses said condition of said hardware or said software of said robot apparatus, on the basis of the analysis result.

32. The diagnostic system according to Claim 31, wherein:

said second communication means transmits said diagnosis result to said first communication means through said communication line; and

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said first communication means comprises display means for visually displaying said diagnosis result, which is obtained from said second communication means.

33. The diagnostic system according to Claim 31, wherein:

said robot apparatus has at least one of a transition probability model which is obtained by modeling transition of generating actions and behaviors of the robot apparatus, a feeling model which is obtained by modeling change of feeling of the robot apparatus, and a growth model which is obtained by modeling the growth of the robot apparatus, and on the basis of the external condition, the internal condition and/or the operation from outside, the transition probabilities corresponding to said transition probability model, parameter values corresponding to said feeling model, and/or the current growth step of the robot apparatus in said growth model are changed as necessity;

said first communication means transmits each of said transition probabilities of said transition probability model, each of said parameter values of said feeling model, and/or a growth step value representing the current growth step in said growth model, as said data for diagnosis for diagnosing said condition of said software of said robot apparatus, to said second communication means; and

said second communication means analyzes each of said

transition probabilities of said transition probability model, each of said parameter values of said feeling model, and/or said growth step value, and diagnoses the character of said robot apparatus as said condition of said robot apparatus on the basis of the analysis result.

34. The diagnostic system according to Claim 33, wherein:
said second communication means:

transmits question data to ask said user of said robot apparatus how to breed the robot apparatus, to said first communication means, after diagnosing said character of said robot apparatus; and

performs predetermined counseling processing on the basis of said user's answers to the questions, which are transmitted from said first communication means, and said data for diagnosis of the robot apparatus, and transmits the counseling result, obtained through the counseling processing, indicating how to breed the robot apparatus, to said first communication means.

35. The diagnostic system according to Claim 31, wherein:

said second communication means transmits a problem diagnostic program which is a computer program to diagnose the condition of said hardware of said robot apparatus;

said first communication means examine if said hardware of

05914408-082701
said robot apparatus has any problems, on the basis of the problem diagnostic program, and transmits the examination result to said second communication means; and

said second communication means analyzes the examination result, which is transmitted from said first communication means, and diagnoses the presence or absence of a problem on the basis of the analysis result as said condition of said hardware of said robot apparatus.

36. The diagnostic system according to Claim 35, wherein said second communication means informs a predetermined service center of data related to a problem and/or necessary data including the serial number of said robot apparatus, which is obtained via said first communication means, in the case where said hardware keeping said robot apparatus has the problem.

37. The diagnostic system according to Claim 35, wherein said second communication means transmits a destination of a repair request to said first communication means in the case where said hardware of said robot apparatus has a problem.

38. A diagnostic method, comprising:
a first step of transmitting data for diagnosis necessary for diagnosing the condition of said software or said hardware of a robot apparatus, from first communication means provided on a

user side of the robot apparatus, to second communication means provided on a service providing side which provides a service to diagnosis the condition of the hardware or the software of the robot apparatus; and

a second step of, using said second communication means, analyzing said data for diagnosis, which is given from said first communication means, and diagnosing said condition of said software or said hardware of said robot apparatus on the basis of the analysis result.

39. The diagnostic method according to Claim 38, comprising a third step of transmitting said diagnosis result to said first communication means through said communication line from said second communication means, and making said first communication means visually display said diagnosis result.

40. The diagnostic method according to Claim 38, wherein: said robot apparatus has at least one of a transition probability model which is obtained by modeling transition of generating actions and behaviors of the robot apparatus, a feeling model which is obtained by modeling change of feeling of the robot apparatus, and a growth model which is obtained by modeling the growth of the robot apparatus, and on the basis of the external condition, the internal condition and/or the operation from outside, the transition probabilities

corresponding to said transition probability model, parameter values corresponding to said feeling model, and/or the current growth step of the robot apparatus in said growth model are changed as necessity;

said first step is to transmit each of said transition probabilities of said transition probability model, each of said parameter values of said feeling model, and/or a growth step value representing the current growth step of the robot apparatus in said growth model, as said data for diagnosis for diagnosing said condition of said software of said robot apparatus, to said second communication means; and

said second step is to analyze each of said transition probabilities of said transition probability model, each of said parameter values of said feeling model, and/or said growth step value, and diagnose the character of said robot apparatus as said condition of said robot apparatus on the basis of the analysis result.

41. The diagnostic method according to Claim 40, wherein:

said second step comprises:

a question data transmitting step of transmitting question data to ask said user of said robot apparatus how to breed the robot apparatus, to said first communication means, after diagnosing said character of the robot apparatus;

a counseling processing step of performing predetermined counseling processing on the basis of said user's answers to the questions, which are transmitted from said first communication means and said data for diagnosis of the robot apparatus; and

a counseling result transmitting step of transmitting the counseling result indicating how to breed the robot apparatus, which is obtained through the counseling processing, to said first communication means.

42. The diagnostic method according to Claim 40, wherein said first step comprises:

a problem diagnostic program transmitting step of transmitting a problem diagnostic program which is a computer program to diagnose the condition of said hardware keeping said robot apparatus, on said network to said user of said robot apparatus;

an examining step of examining if said hardware of said robot apparatus has any problems, on the basis of the program diagnostic program; and

an examination result transmitting step of transmitting the examination result to said second communication means; and

said second step is to analyze the examination result, which is transmitted from said first communication means, and

diagnoses the presence or absence of a problem as said condition of said hardware of said robot apparatus, on the basis of the analysis result.

43. The diagnostic method according to Claim 42, wherein said second step comprises an informing step of informing a predetermined service center of data related to a problem and/or necessary data including the serial number of said robot apparatus which is obtained via said first communication means, in the case where said hardware of said robot apparatus has the problem.

44. The diagnostic method according to Claim 42, wherein said second step comprises a repair-request-destination informing step of informing said first communication means of a destination of a repair request in the case where said hardware of said robot apparatus has a problem.

45. A diagnostic device, comprising:
analyzing means for acquiring data necessary for diagnosing hardware or software of a robot apparatus from the robot apparatus or a storage medium storing the software, and analyzing the data; and

diagnosing means for diagnosing the condition of said robot apparatus on the basis of the analysis result by said analyzing

means.

46. The diagnostic device according to Claim 45, wherein
said analyzing means acquires said data necessary for said
diagnosis, from said robot apparatus or said storage medium, on a
predetermined network.

47. The diagnostic device according to Claim 45, comprising
display means for visually displaying said diagnosis result
by said diagnosing means.

48. The diagnostic device according to Claim 45, wherein:
said robot apparatus has at least one of a transition
probability model which is obtained by modeling transition of
generating actions and behaviors of the robot apparatus, a
feeling model which is obtained by modeling change of feeling of
the robot apparatus, and a growth model which is obtained by
modeling the growth of the robot apparatus, and on the basis of
the external condition, the internal condition and/or the
operation from outside, the transition probabilities
corresponding to said transition probability model, parameter
values corresponding to said feeling model, and/or the current
growth step of the robot apparatus in said growth model are
changed as necessity;

said analyzing means acquires each of said transition

probabilities of said transition probability model, each of said parameter values of said feeling model, and/or a growth step value representing the current growth step in said growth model, as said data for diagnosis for diagnosing said condition of said software of said robot apparatus, and analyzes each of said transition probabilities of said transition probability model, each of said parameter values of said feeling model, and/or said growth step value; and

said diagnosing means diagnoses the character of said robot apparatus as said condition of said robot apparatus.

49. The diagnostic device according to Claim 47, wherein said diagnosing means

displays question data to ask said user of said robot apparatus how to breed the robot apparatus, on said display means, after diagnosing said character of said robot apparatus; and

performs predetermined counseling processing on the basis of said user's answers to the questions and said data for diagnosis of the robot apparatus, and displays the counseling result indicating how to breed the robot apparatus, which is obtained through the counseling processing, on said display means.

50. The diagnostic device according to Claim 46, wherein:

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a problem diagnostic program which is a computer program to diagnose the condition of said hardware of said robot apparatus, is transmitted to a user side of said robot apparatus on said network;

said analyzing means analyzes the examination result indicating the presence or absence of a problem in said hardware of said robot apparatus, which is transmitted from said user side, on the basis of said problem diagnostic program; and

said diagnosing means diagnoses the presence or absence of a problem, on the basis of the analysis result by said analyzing means, as said condition of said hardware of said robot apparatus.

51. The diagnostic device according to Claim 50, wherein said diagnosing means informs a predetermined service center of data related to a problem and/or necessary data including the serial number of said robot apparatus, which is obtained on said network, in the case where said hardware of said robot apparatus has the problem.

52. The diagnostic device according to Claim 50, wherein said diagnosing means informs said user side of a destination of a repair request in the case where said hardware of said robot apparatus has a problem.

53. A diagnostic method, comprising:

09914408-082704
54. a first step of acquiring data necessary for diagnosing hardware or software of said robot apparatus, from the robot apparatus or a storage medium storing the software, and analyzing the data; and

55. a second step of diagnosing the condition of said robot apparatus on the basis of the analysis result.

54. The diagnostic method according to Claim 53, wherein said first step is to acquire said data necessary for said diagnosis, from said robot apparatus or said storage medium on a predetermined network.

55. The diagnostic method according to Claim 53, comprising a third step of visually displaying said diagnosis result in said second step.

56. The diagnostic method according to Claim 53, wherein: said robot apparatus has at least one of a transition probability model which is obtained by modeling transition of generating actions and behaviors of the robot apparatus, a feeling model which is obtained by modeling change of feeling of the robot apparatus, and a growth model which is obtained by modeling the growth of the robot apparatus, and on the basis of the external condition, the internal condition and/or the operation from outside, the transition probabilities

corresponding to said transition probability model, parameter values corresponding to said feeling model, and/or the current growth step of the robot apparatus in said growth model are changed as necessity;

said first step is to acquire each of said transition probabilities of said transition probability model, each of said parameter values of said feeling model, and/or a growth step value representing the current growth step in said growth model, as said data for diagnosis for diagnosing said condition of said software of said robot apparatus, and analyze each of said transition probabilities of said transition probability model, each of said parameter values of said feeling model, and/or said growth step value; and

said second step is to diagnose the character of said robot apparatus as said condition of said robot apparatus on the basis of the analysis result.

57. The diagnostic method according to Claim 56, comprising:

a third step of transmitting question data to the user on said network to ask said user of said robot apparatus how to breed the robot apparatus, after diagnosing said character of said robot apparatus;

a fourth step of performing counseling processing on the basis of said user's answers to the questions, which are transmitted on said network, and said data for diagnosis of said

robot apparatus; and

a fifth step of transmitting the counseling result indicating how to breed the robot apparatus, which is obtained through the counseling processing, to said user.

58. The diagnostic method according to Claim 54, wherein:
said first step comprises:

a problem diagnostic program transmitting step of transmitting a problem diagnostic program which is a computer program to diagnose the condition of said hardware of said robot apparatus, to said user of said robot apparatus on said network;

a data-for-diagnosis acquiring step of acquiring the examination result indicating the presence or absence of a problem in said hardware of said robot apparatus, which is performed on said user side on the basis of said problem diagnostic program, as said data for diagnosis; and

an analyzing step of analyzing the obtained data for diagnosis; and

said second step is to diagnose the presence or absence of a problem on the basis of the analysis result in said analyzing step as said condition of said hardware of said robot apparatus.

59. The diagnostic method according to Claim 58, wherein
said second step comprises an informing step of informing a

predetermined service center of data related to a problem and/or necessary data including the serial number of said robot apparatus, which is obtained on said network, on said network, in the case where said hardware of said robot apparatus has the problem.

60. The diagnostic method according to Claim 58, wherein said second step comprises a repair-request-destination informing step of transmitting a destination of a repair request to said first communication means on said network, in the case where said hardware of said robot apparatus has a problem.